ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 5 of the Commission's Rules to Revise the Experimental Radio Service Regulations	)	ET Docket No. 96-256

COMMENTS OF AT&T WIRELESS SERVICES, INC.

AT&T Wireless Services, Inc. ("AT&T"), by its attorneys, hereby submits its comments with respect to the Notice of Proposed Rulemaking in the above-captioned proceeding.[1/] AT&T generally supports the Commission's efforts to update and streamline the experimental licensing process. The proposed rules will make it easier for experimental licensees to explore and develop new radio technologies, equipment and system designs, and service concepts. As a non-experimental wireless licensee, however, AT&T urges the Commission to address interference and other issues that arise between experimental and incumbent licensees. In this regard, the Commission should carefully limit the size and scope of both market and technological studies to prevent "experimental" licensees from circumventing the normal licensing process. The Commission must also require experimental licensees to notify and coordinate with in-band operators before commencing operations to avoid potential harmful interference.

[1/] In the Matter of Amendment of Part 5 of the Commission's Rules to Revise the Experimental Radio Service Regulations, ET Docket No. 96-256, Notice of Proposed Rulemaking, FCC 96-475 (rel. Dec. 20, 1996) ("Notice").

I. The Commission Should Ensure that Licensees Do Not Abuse Their Experimental Authorizations.

As the Commission acknowledges, various parties have obtained experimental licenses "with the apparent intent of trying to establish businesses without having to obtain or pay for non-experimental [radio] licenses."[2/] This practice puts non-experimental licensees, who often have had to pay for the spectrum, at a competitive disadvantage and undermines the integrity of the Commission's processes. This situation is especially egregious when the experimental licensee is given authority to pursue applications that potentially interfere with licensed operations in the band or that are inconsistent with regulations governing licensed operators in the band.

For instance, on December 28, 1994, the Commission's Experimental Licensing Branch granted an experimental license to AirCell, Inc. ("AirCell") to test an air-ground system anywhere in the continental United States in the band exclusively reserved for cellular service. The license was granted and subsequently renewed through July 1, 1998, even though Section 22.925 of the Commission's rules prohibits the operation of cellular telephones aboard airborne aircraft.[3/] This rule was adopted in 1991 after the Commission determined that in-flight use of cellular telephones could cause "harmful operational interference" to multiple cellular systems in the vicinity of the aircraft.[4/] The Commission concluded that "the need for noninterference in all cellular transmissions outweighs the

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[2/] Notice at ¶ 17.

[3/] 47 C.F.R. § 22.925.

[4/] Amendment of Sections of Part 22 of the Commission's Rules in the Matter of Airborne Use of Cellular Telephones and the Use of Cell Enhancers in the Domestic Public Cellular Radio Service, Report and Order, 7 FCC Rcd 23 (1991).

benefits that would be realized by allowing the public to use cellular service in airborne aircraft."[5/]

Despite the threat of harmful interference to terrestrial cellular service and the fact that cellular licensees are forbidden from providing a similar service, AirCell has been allowed to operate in the cellular band under the protection of an experimental license. It has been reported that AirCell already is providing air-ground service from six antenna sites and intends to deploy a nationwide air-ground network of 150 antenna ground sites under a plan "to roll out 20 sites per month, allowing for full-scale service by mid-1997."[6/] There is no indication of what, if any, additional licensing authority AirCell plans to obtain to support its fully commercial, nationwide air-ground service located in a band where such an application is forbidden. This "experiment" has far exceeded the limited intent of the experimental licensing rules and has threatened the operations of cellular licensees.[7/]

[5/] Id. To satisfy the public's needs to operate phones in-flight, the Commission established an air-ground radiotelephone service that operates in the 800 MHz frequency band. This service is capable of operating while the aircraft is airborne or on the ground. AT&T's affiliate, Claircom Licensee Corporation, holds one of three nationwide licenses for this air-ground service.

[6/] See Attachment A hereto, Laurence Swasey, Firm Offers Air-to-ground System, WIRELESS WEEK, Jan. 13, 1997, at 38; see also Attachment B hereto, James Holahan, At Last, Aero-Cellular Service Gets Under Way, AVIATION INTERNATIONAL NEWS, Jan. 1992; Attachment C hereto, Trimble Announces Deal with AirCell, Plans to Move into Avionics, CNS OUTLOOK, Nov. 27, 1996, Vol. 4, No. 24.

[7/] In other situations, parties have obtained experimental license authority ostensibly to test CMRS technology by setting up extensive "on campus" wireless networks that provide their employees with free communications services. In this manner, it is possible for experimental radio licensees to provide a host of wireless voice communication and data transmission services that would otherwise be provided by licensed CMRS providers for a fee.

For these reasons, AT&T agrees that the Commission should "limit the size and scope of each [market] study . . . on a case-by-case basis" to ensure that experimental radio licensees do not "establish commercial businesses under the guise of experimental licenses."[8/] In addition to "submit[ting] a narrative describing in detail the proposed study and its objectives,"[9/] AT&T believes that experimental license applicants should be required to supply sufficient information and justification to allow the Commission to "determine the appropriate limits" of the trial on a case-by-case basis. Moreover, because both technological and market studies present avenues for abuse of experimental licenses, the Commission should not limit these obligations to experiments aimed at studying new markets.[10/]

II. The Commission Should Issue Licenses for Five Year Terms Upon an Adequate Demonstration of Need.

AT&T supports the Commission's proposal to establish "a new class of experimental license, with a five year term, to support long-term operations."[11/] The Commission correctly recognizes that licensees embarking on long-term, ongoing research and development may require the certainty of a longer license term rather than having to seek a renewal. To prevent abuses of such authorizations, however, the Commission should require

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[8/] Notice at ¶ 17.

[9/] Id. at ¶ 18.

[10/] Id. at ¶ 17. The Commission's proposed rules differ from the text of the Notice in that the rules contemplate that all applicants for experimental radio licenses, as opposed to just applicants seeking to perform market studies, will be subject to enhanced scrutiny. See id., Appendix A (proposing 47 C.F.R. § 5.63(a)).

[11/] Notice at ¶ 7.

applicants to demonstrate why they will not be able to complete experimentation in two years, and grant three, four or five year licenses only as necessary pursuant to the applicant's submission. If the applicant cannot demonstrate in advance why the long term development needs of the particular project require a longer license term, it will still have an opportunity to secure a renewal of its authorization.

III. Experimental Radio Licensees Should Notify In-Band Licensees Prior to Commencing Operations.

To ensure that operations of experimental licensees do not cause harmful interference with transmissions from CMRS providers and other licensees in the same band, experimental radio licensees must be required to provide written notification to other in-market entities licensed to use the band at least 30 days prior to commencing operations. Such a notice should provide details regarding the frequencies to be used, the type of service to be offered, and the geographic scope of the experiment. Because the bulk of this information is contained in the experimental license application, the notification requirement would not impose a significant burden on experimental radio licensees.

Incumbent licensees require this information and 30-days advance notice so that they may assess any potential for interference from the experimental radio licensee's operations and coordinate with the experimental licensee to minimize such potential. Notice to incumbent licensees is particularly important considering that the Commission proposes to eliminate the requirement that the licensee notify the FCC's field offices prior to commencing experimental operations.[12/] Requiring the licensee to notify the Experimental

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[12/] Id. at ¶ 19.

Licensing Branch prior to commencement of operations "where there is a reasonable chance of interference" is not an adequate substitute.[13] It may be difficult to predict, especially prior to the experimental use, whether an experimental radio licensee's operations will cause harmful interference with other in-band operations. The most well-placed entities for purposes of identifying and resolving problems of potential interference, of course, are the other in-band licensees.

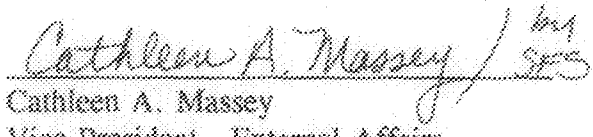
[13] Id.

CONCLUSION

For the foregoing reasons, the Commission should revise its experimental licensing rules as proposed, but should adopt the safeguards suggested herein to prevent abuse of the experimental licensing process.

Respectfully submitted,

AT&T WIRELESS SERVICES, INC.



Cathleen A. Massey
Vice President - External Affairs
Douglas I. Brandon
Vice President - External Affairs
1150 Connecticut Avenue, N.W.
Suite 400
Washington, D.C. 20036
202/223-9222

Howard J. Symons
Sara F. Seidman
Gregory R. Firehock
Mintz, Levin, Cohn, Ferris, Glovsky
and Popeo, P.C.
701 Pennsylvania Avenue, N.W.
Suite 900
Washington, D.C. 20004
202/434-7300

Of Counsel

February 10, 1997

CERTIFICATE OF SERVICE

I, Cheryl Flood, do hereby certify that on this 10th day of February, 1997, I caused a copy of the foregoing "Comments of AT&T Wireless Services, Inc." to be delivered by messenger (*) or first class mail to the following:

Cheryl Flood

Michele C. Farquhar*
Chief
Wireless Telecommunications Bureau
Federal Communications Commission
2025 M Street, N.W., Room 5002
Washington, D.C. 20554

Rodney Small*
Economist
Office of Engineering and Technology
Federal Communications Commission
2000 M Street, N.W., Room 480
Washington, D.C. 20554

Rosalind K. Allen*
Deputy Chief
Wireless Telecommunications Bureau
Federal Communications Commission
2025 M Street, N.W., Room 5002
Washington, D.C. 20554

International Transcription Service*
2100 M Street, N.W., Room 140
Washington, D.C. 20554

Paul Marrangoni*
Acting Bureau Chief
Experimental Licensing Branch
New Technology Development Division
Federal Communications Commission
2000 M Street, N.W.
Washington, D.C. 20554

Thomas Derenge*
Electronics Engineer
Office of Engineering and Technology
Federal Communications Commission
2000 M Street, N.W., Room 480
Washington, D.C. 20554

Wireless WEEK
January 13, 1997
at page 38

Firm Offers Air-to-ground System

By Laurence Sweeney

AirCell Inc. has been actively testing its airborne telephone equipment based on the company's proprietary technology that will allow for air-to-ground, ground-to-air and air-to-air voice, fax and data calls.

The company recently signed a letter of intent with Sunnyvale, Calif.-based Trimble Navigation Ltd. in which Trimble will assemble, market and support the product line based on AirCell's cellular spectrum reuse technology.

AirCell is deploying a nationwide telecommunications network that will support air-to-ground communications at a lower price with more robust data and voice than current air-to-ground communication technologies, according to Geoffrey Hoppe, vice president of sales and marketing at Boulder, Colo.-based AirCell.

To date, the company has deployed four antenna test sites since last spring. AirCell plans to roll out 20 sites per month, allowing for full-scale service by mid-1997.

The network will feed the Trimble TrimConnect 3100D Flight Telephone system, which was unveiled at a National Business Aircraft Association show last October. The TrimConnect 3100D provides one voice or data line, with an upgrade to a multiline box due in mid-1997, Hoppe said. The TrimConnect 3100D consists of a radio transceiver, headset and external antenna and weighs under 10 pounds. The system's price is approximately $6,000, not including airtime charges.

Data speeds can currently reach 9,600 baud, Hoppe said, with the potential for higher speeds in the future. A new modem has been in beta test for several months.

"It's just exactly like a good cellular phone," said Warren Harmon, an airline transport pilot flying for the law firm, Waltman & Associates. The pilot, based in Bryan College Station, Texas, said he feels the system "is a must." Harmon has been beta testing the system since last spring, connecting to existing base sites in Fort Lauderdale, Fla.; Hugo, Okla.; Wichita Falls, Texas; and Martinsburg, Va.

Harmon said he particularly likes the seamlessness of the system and its data speed, which allows his passengers to access needed faxes and other documents as easily as through a terrestrial-based cellular system.

"Basically, we are developing a technology that allows reuse of the cellular spectrum without interfering with the ground cellular systems even though it is in the same frequency," Hoppe said.

AirCell will collocate off-the-shelf transceiver equipment at 150 existing cellular sites operated by approximately 20 carriers. The company also will deploy its base station antennas, which are based on its own proprietary technology. All of the components will include various aspects of the company's nine patents. The system has been in development since 1991.

The low cost of the system deployment, which will be passed on to the user, results from the use of existing cell sites and off-the-shelf hardware, Hoppe said.

Airborne calls are received by the AirCell base station antennas, and then routed through the existing ground mobile site into the public-switched telephone network.

At last, aero-cellular service gets under way

by James Holahan

After five years of development and three years of repetitively promising that system turn-on was only months away, AirCell's low-cost airborne cellular phone system is being launched this month as the Trimble TrimConnect 3100D Flight Telephone System.

As announced at last November's National Business Aircraft Association Convention in Orlando, Fla., AirCell and Trimble have signed a letter of agreement under which Trimble Avionics Products, Austin, Tex., would manufacture, market and support aircraft telephone products based on AirCell's proprietary technology. That technology essentially allows airborne use of modified cellular phones to tap into established mobile cells without interfering with their normal traffic.

Once in the cell, the aircraft transmission is treated no differently than calls from mobile ground users. The system would be seamless in the sense that the communications linkage would move from cell to cell as the flight progressed. To the user it would appear that he or she was in continuous contact with one ground station. Each cell covers a radius of 250 to 300 nmi depending on line of sight.

Under the partnership, AirCell, based in Boulder, Colo., would develop, deploy and operate a 48-state ground-based chain of antenna sites supporting the Trimble Flight Telephone System, which would be sold through Trimble's chain of dealers.

Initially, system use will be confined to the northeast section of the U.S., where AirCell already has six antenna sites up and running and intends to add 20 more this month. A total of 80 antenna ground sites have been contracted for and 70 more will be added, resulting in a literal forest of 150 stations for complete coverage of the continental U.S. by mid-1997. Initially, too, the minimum altitude for system operation would be 15,000 ft. As more stations are added the minimum altitude would drop to 5,000 ft, although AirCell stated it could be used, preferably in airport areas, as low as 1,000 ft. The altitude limits are due to the system's line of sight characteristics since it operates in the 800 MHz spectrum on the same frequencies with the same type of modulation (FM) as the ground mobile cellular phone system.

Through AirCell's unique design, its system is able to use existing ground mobile telephone cells, of which about 23,000 cover the contiguous states. Phone calls from an aircraft are picked up by an AirCell antenna and fed into a nearby cellular switching terminal through which they are routed to the public switch telephone network (PSTN) for connection to the phone number being called. Similarly, a caller on the ground may phone an equipped aircraft using its assigned 10-digit number. The system has voice, fax and data capabilities, with voice quality claimed to be equal to that of conventional analog cellphones. Data would be conveyed at a 9,600-bits-per-second rate.

The airborne hardware, Trimble's TrimConnect 3100D, lists for $5,995 uninstalled and consists of a remotely mounted box, a telephone handset and an antenna. The last may be a blade type something akin to a VHF comm antenna, or a combination tail-fin antenna that serves VOR and glideslope receivers also. Total system weight is quoted at just under 10 lb. Installation in a pressurized aircraft would take about 12 hours, an AirCell spokesman estimated. The installation would include one or more RJ11 common telephone jacks for connecting a fax machine or a modem.

In addition to the $5,995 purchase price, the buyer is assessed a $45 monthly fee plus 75 cents per minute air time. Unlike with the ground mobile cellular systems, users don't pay a full minute for fractions of minutes. Instead, use calculations are based on six-second increments of air time. Also unlike the ground cellular phone system, there are no roaming charges; users pay the same 75 cents per minute calling anywhere in the contiguous U.S.

TrimConnect 3100D can be used on the ground (at an airport) as well as in flight. The system actually has two transceivers (both built by Motorola): a conventional cellphone transceiver for ground use, and a modified transceiver for air-to-ground/ground-to-air use. A manual switch lets the pilot choose between the two depending on whether the aircraft is on the ground or in flight. Obviously the ground-use transmitter can't legally be used in the air because it could be received simultaneously by several cells, causing interference.

Originally it was contemplated to have a single telephone handset that would work in the user's car or airplane. That plan has been shelved, at least temporarily, said the AirCell spokesman.

Each ground site has two ground antennas, both around 12-ft tall, one for receiving and one for transmitting. Aircraft transmissions carry a special ident so they can be recognized and treated separately for billing purposes. Billing will be done by AirCell, not the cell providers.

AirCell can be thought of as a buyer and reseller of cellular phone time—it contracts for air time from the cell providers at wholesale prices and sells it retail to its individual subscribers.

Currently AirCell is operating its system under a two-year market development license from the Federal Communications Commission. The license is renewable, but the company is working to obtain a long-term authorization.

Trimble is said to have ideas on eventually integrating its telephone with GPS, allowing the aircraft to downlink its position in addition to communicating. □

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HEADLINE: TRIMBLE ANNOUNCES DEAL WITH AIRCELL, PLANS TO MOVE INTO AVIONICS
MANUFACTURING

BODY:

Sunnyvale, Calif.-based Trimble Navigation is manufacturing a product it does not normally produce--one that does not have GPS incorporated. Instead, the GPS giant is teaming with Boulder, Colo.-based AirCell Inc. to develop airborne telephone equipment. Under the terms of the
deal, which was signed at the recent National Business Aircraft Association Convention, Trimble plans to manufacture and distribute the product in January, said Charles Gunderson, Trimble managing director of general and commercial aviation.

...Targeted to Cabins of Business Aircraft

"The AirCell-Trimble product is targeted to cabins of business aircraft," he said. "From the users' standpoint, the Trimble-AirCell telephone looks like any standard cellular handset. A user can dial a call and push the send key, so it requires no special operators, no special networks."

AirCell is deploying a nationwide telecommunications network for aviation using a patented frequency reuse technology. The company is co-locating specialized equipment at 150 existing ground mobile sites--and is working with nearly 20 cellular operators.

Calls to AirCell's Boulder offices went unreturned at CNS Outlook's deadline.

The unit, called the TrimConnect 3100D Flight Telephone System, retails for $5,999. Gunderson said the unit has better clarity than normal cellular systems and other air phones. "It will also be cheaper to operate [per minute] than the mobile satellite phone systems that are coming on line," he said.

...Trimble Has No Plans to Dump Honeywell

Trimble is marketing avionics under the Trimble, TrimLine and Terra by Trimble brand names. "We have been working very hard to strategically transform into an avionics company. We have high-end products as well as sport aviation products," Gunderson said.

Trimble will continue to work with Honeywell Inc. on major flight management systems for commercial aviation, said Jim Veihdeffer, a Honeywell spokesman.

In other Trimble news, the company recently announced that long-time employee Chuck Joseph, formerly executive vice president and general manager of the business unit, resigned to pursue other interests. Taking his place in the business unit is David Hall, who joined Trimble in 1994 as OEM products managing director.

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